

Mason-Lake Tech Prep
Welding Technology
Alignment to Visual, Performing and Applied Arts

Strand 1 Applied Arts Standard	How the Standard is Addressed in this Program Create (C)	How the Standard is Assessed Assessed	Time Spent on the Standard Concepts are encountered at various times throughout the year
C.1 Engage in full iterative cycles of artistic/creative process by problem seeking, exploring, making analytical, application, aesthetic, and design choices, before completion.	<p>Students are emerged in the iterative cycle in welding. Students are expected to assess welds, make corrections, and compare measurements. Students adjust amps, angles, and travel speeds and then pre-weld. Students repeat the process until the welds meet the AWS standards for acceptable weldments.</p> <p>Students are expected to achieve a proficiency of 70% or higher on any written assessments. If students are under 70%, they can restudy (with teacher assistance) and retake the assessment.</p> <p>Mastery learning is an expectation.</p>	<p>Students demonstrate proficiency on:</p> <ul style="list-style-type: none"> 1) American Welding Society standards (performance-based assessments), 2) written tests. 	<p>Concepts are encountered at various times throughout the year</p>
C.2 Develop an idea, question, or problem that is guided by the personal, historical, contemporary, cultural, environmental, and/or economic contexts of the visual, performing, or applied arts discipline.	<p>Students will research the different types of materials that can be used to construct various projects. These may include, but will not be limited to: stainless, aluminum, steel, and other types of metals. They will determine what materials will be the best to use and which welding process is most appropriate. Students incorporate a variety of community service projects into the classroom setting. As part of these community projects, the students must demonstrate knowledge of the historical, contemporary, cultural, environmental, and economic factors that guide an appropriate product to be displayed in the community. (Mason-Lake Tech Prep is part of a high tourist community and projects must be appropriate for both our locals and our visitors to the area.)</p>	<p>Students demonstrate proficiency on:</p> <ul style="list-style-type: none"> 1) American Welding Society standards (performance-based assessments), 2) written tests. 	<p>Concepts are encountered at various times throughout the year</p>

<p>C.3 Understand, recognize and use the elements, organizational principles, patterns, relationships, techniques, skills, and applications of the visual, performing, or applied arts discipline.</p>	<p>Students will develop problem solving and trouble shooting skills as the project progresses. They will use these skills to solve technical problems that present themselves as they proceed through the construction and assembly phase of their project. Some specific skills or techniques that welding students learn include: reading welding blueprints, soldering, brazing, braze welding, arc welding, wire feed welding, plasma cutting, and gas tungsten arc welding (GTAW). Along with the process that students learn, they also recognize the proper safety procedures and material handling. Students apply knowledge of different metal interactions and different metal flexibility and/or rigidity for determining how different pieces of a whole will be used.</p>	<p>Students demonstrate proficiency on:</p> <ul style="list-style-type: none"> 1) American Welding Society standards (performance-based assessments), 2) written tests. 	<p>Concepts are encountered at various times throughout the year</p>
<p>C.4 Use the best available and appropriate instruments, resources, tools, and technologies to facilitate critical decision-making, problem solving, editing, and the creation of solutions.</p>	<p>Students will learn how to properly and safely use the machinery and equipment, which has been made available for the construction of their projects. Students will recognize the best use of these tools and machinery. Some specific tools and machines used by welding students include: cutting devices (mechanic, plasma, oxy-fuel, carbon-arc), grinders, buffers, drills, levers, wheels, clamps, metal shears, and drill presses. Students use CAD designs to create their projects.</p>	<p>Students demonstrate proficiency on:</p> <ul style="list-style-type: none"> 1) American Welding Society standards (performance-based assessments), 2) written tests. 	<p>Concepts are encountered at various times throughout the year</p>
<p>C.5 Reflect on and articulate the steps and various relationships of the artistic/creative process.</p>	<p>Students will reflect on the process used to make the project. They will implement the steps needed to maintain a safe work environment, which has been made available for the construction of their projects. Students will recognize the best use of these tools and machinery during the construction phase of the project. Students continually refine and self-evaluate their work during the completion of their project.</p>	<p>Students demonstrate proficiency on:</p> <ul style="list-style-type: none"> 1) American Welding Society standards (performance-based assessments), 2) written tests. 	<p>Concepts are encountered at various times throughout the year</p>

Strand 2	Perform/Present (P)		
P.1 Apply the techniques, elements, principles, intellectual methods, concepts, and functions of the visual, performing, or applied arts discipline to communicate ideas, emotions, experiences, address opportunities to improve daily life, and solve problems with insight, reason, and competence.	Students will be able to effectively communicate with other members of the class in regards to the construction of the project. They will work effectively as a team where more than one individual is needed to perform a task in the construction phase of the project. They will be able to communicate ideas and solve problems with insight, reasoning, and competence. Through the community service projects that students partake in, the products from this class have been used to communicate ideas, emotions, and experiences (Christmas decorations for downtown) and improve daily life (bicycle racks for play areas and downtown).	Students demonstrate proficiency on: <ul style="list-style-type: none"> 1)American Welding Society standards (performance-based assessments), 2) written tests. 	Concepts are encountered at various times throughout the year
P.2 Demonstrate skill use of appropriate vocabularies, tools, instruments, and technologies of the visual, performing, or applied arts discipline.	The student will be able to identify and demonstrate the many tools and measuring devices necessary for construction of their projects. They will know the name as well as understand and demonstrate the safe use of the machines and equipment available for the construction of their projects. Students will learn welding terminology and be able to read and interpret welding blueprints.	Students demonstrate proficiency on: <ul style="list-style-type: none"> 1)American Welding Society standards (performance-based assessments), 2) written tests. 	Concepts are encountered at various times throughout the year
P.3 Describe and consider relationships among the intent of the student/artist, the results of the artistic/creative process, and a variety of potential audiences or users.	The students will be exposed to a variety of audiences. Some examples include: peer groups, advisory groups, work experiences, cooperative learning, administrative visitors, and guest speakers from the public. They will have the opportunity to explore and use a variety of artistic/creative processes in the construction of their projects through field trips, private sector visits, and advisory committee recommendations.	Students demonstrate proficiency on: <ul style="list-style-type: none"> 1)American Welding Society standards (performance-based assessments), 2) written tests. 	Concepts are encountered at various times throughout the year
P.4 Perform, present, exhibit, publish, or demonstrate the results of the artistic/creative process for an audience.	While reflecting on the design process, the students will be exposed to a variety of audiences. Some examples of the variety of audiences that students encounter include: welders in the field, peers, community service groups, and representatives from the public sector. Students contribute to a variety of local community maintenance projects. Some community projects students have contributed to over the years include: bicycle racks, flag holders, Christmas decorations, stands for Christmas trees, and mascots for area schools.	Students demonstrate proficiency on: <ul style="list-style-type: none"> 1)American Welding Society standards (performance-based assessments), 2) written tests. 	Concepts are encountered at various times throughout the year

Strand 3	Respond (R)	
R.1 Observe, describe, reflect, analyze, and interpret works of the visual, performing, or applied arts.	<p>Students will demonstrate the ability to perform a given task during the construction of their project. They will learn to observe, reflect, analyze, and interpret the processes used to construct both their own projects and those of their peers. Through these processes, a students will be able to offer constructive advice to other students regarding the process needed to complete a project. Students will distinguish between the various processes that could be used to complete a project (arc, wire, or tungsten welding processes and/or plasma arc, oxy-fuel, or mechanical cutting.) Students will be able to explain why a certain method is the most appropriate for a particular project.</p> <p>On a more global scale, students reflect on the changes in the automotive industry; from hand-built cars to assembly lines to robotics. Students analyze the construction and repair of Old Muskie (a large crane) and the Mackinac Bridge. Students are exposed to advanced welding processes needed to perform large-scale tasks; such as repairs to the Mackinac Bridge.</p>	<p>Students demonstrate proficiency on:</p> <ul style="list-style-type: none"> 1) American Welding Society standards (performance-based assessments), 2) written tests. <p>Concepts are encountered at various times throughout the year</p>
	R.2 Identify, describe, and analyze connections across the visual, performing, and applied arts disciplines, and other academic disciplines.	<p>Students demonstrate proficiency on:</p> <ul style="list-style-type: none"> 1) American Welding Society standards (performance-based assessments), 2) written tests. <p>Concepts are encountered at various times throughout the year</p>

<p>R.3 Describe, analyze, and understand the visual, performing, or applied arts in historical, contemporary, social, cultural, environmental, and/or economic contexts.</p>	<p>Students will describe, analyze and understand the historical, contemporary, social, cultural, environmental and/or economic importance of the skilled trades. They will see this through things such as past trends associated with various period products such as the plasma torch vs. the oxygen-acetylene torch. They will understand the economic impact that occurs when various preferences for different styles of products are preferred. Students will weigh time and money factors with ecological impact.</p>	<p>Students demonstrate proficiency on:</p> <ul style="list-style-type: none"> 1) American Welding Society standards (performance-based assessments), 2) written tests. 	<p>Concepts are encountered at various times throughout the year</p>
	<p>R.4 Experience, analyze, and reflect on the variety of meanings that can be derived from the results of the artistic/creative process.</p>	<p>The students will be able to measure success upon the completion of a project they have successfully produced from the design phase to the construction phase. Through the reflection of this experience, they will be able to analyze the meaning of the artistic/creative process needed to develop this project. They will have a tangible object that can be measured and reflected upon to complete this process.</p>	<p>Students demonstrate proficiency on:</p> <ul style="list-style-type: none"> 1) American Welding Society standards (performance-based assessments), 2) written tests.